



268372



## State Of Ohio Environmental Protection Agency

P.O. Box 1049, 361 East Broad St., Columbus, Ohio 43216-1049  
(614) 466-8565

Richard F. Celeste, Governor

May 9, 1986

Re: Director's Final Findings & Orders  
TRW, Inc.  
Aircraft Components Group  
US EPA ID No.: OHD004174339TRW, Inc.  
Aircraft Components Group  
Attn: Charles T. Bingham  
1900 Richmond Road  
Cleveland, Ohio 44124

CERTIFIED MAIL

Dear Sir:

Transmitted herewith are Final Findings &amp; Orders of the Director concerning the matter indicated.

Very truly yours,

*Thomas E. Crepeau*Thomas E. Crepeau, Manager  
Data Management Section  
Division of Solid & Hazardous Waste ManagementOhio Environmental Protection Agency  
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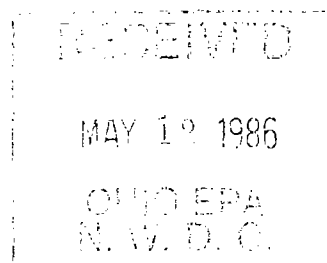
TEC/dhs

MAY 9 1986

cc: Charles Taylor, Chief, DSHWM  
Jenny Tiell, Legal Counsel, OEPA  
Bill Skowronski, NEDO, DSHWM

1161R

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Virgil Davis Date: 5/9/86

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Ohio Revised Code Sections  
6734.13(A) and 6111.03(H)

## MAY 9 1985

3734.13(A) and 6111.03(H) have been made and are outlined below. Respondent, by entering into this Consent Agreement does not admit the findings set forth below. Specifically, TRW neither admits nor denies that any threatened or actual imminent and substantial endangerment exists requiring remedial action, and denies any legal liabilities associated with the Minerva site.

A. The overall site consists of approximately 135 acres located in Stark County, Ohio, near the town of Minerva, Ohio. The plant site itself is situated on a 54 acre parcel of property just east of State Route 183, approximately 1.3 miles northeast of the intersection of Route 183 and U.S. Route 30. Located on the 54 acre parcel is the single major building comprising the Minerva, Ohio, Casting Division facility of the TRW Aircraft Components Group. Additional properties known as the "South Property" and the "East Property," both adjacent to the original 54 acre parcel all make up the "Site" for purpose of this order. This Site is a "facility" as that term is defined in Section 101(9) of CERCLA and Section 3734.01 of the Revised Code.

B. TRW Inc. is an Ohio corporation authorized to do business in the State of Ohio. TRW's principal place of business is located at its Executive Offices, 1900 Richmond Road, Cleveland, Ohio 44124.

C. Respondent TRW Inc. is the owner of the Site and as such is a "person" as that term is defined at Section 101(21) of CERCLA.

D. Certain materials were used by TRW at this Site, among which were hydraulic oils containing polychlorinated biphenyls (PCBs), and solvents including 1,1,1-trichloroethane (TCA), and trichloroethene (TCE). All of those materials are "industrial wastes" as that term is defined in ORC Section 6111.01 and "hazardous substances" as that term is defined in Section 101(14) of CERCLA. TRW used these materials in the metal casting of aircraft components.

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By: Donald Quire Date: 5/9/86<sup>2</sup>

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E. In the past, PCBs, TCA and TCE were discharged by TRW to the drainage swale and the wax ditch areas of the Site. From there the materials migrated or were physically moved so that now there is contamination of six specific areas at the Site: the swale, the wax ditch, the South Pond, the rubble pile, the South Property, and groundwater.

F. By Director's Final Findings and Orders, issued and effective on <sup>June 18</sup>~~July~~ 5, 1985, the Director of OEPA and TRW Inc. agreed to implement a surface cleanup of environmental contamination. While groundwater monitoring was required in the <sup>July 12</sup>~~July~~ 5, 1985 Orders, groundwater remediation and cleanup was not the objective of the surface cleanup and is instead the subject of this Administrative Order on Consent.

G. A release or threat of release as those terms have been defined at Section 101(22) of CERCLA has occurred at the Site in that PCBs, TCA and TCE have been released to the environment, including discharge of TCE and TCA to waters of the State.

H. The plant Site is underlain by a layer of glacial till approximately 50 feet thick below which is a layer of limestone-shale bedrock. The glacial till layer contains a productive aquifer. The groundwater in the area moves generally in a south-southwesterly direction. Additionally, there is a surface water stream that runs to the west of the plant and drains an area known as "West Lake."

I. Across Route 183 from the plant in a southwesterly direction are a number of private residences, some of which draw domestic water from private wells.

J. Based on the information outlined above, OEPA has determined that because of an actual or threatened release of hazardous substances from the

Site there may be an imminent and substantial endangerment to the public health or welfare or the environment. OEPA has also determined that action must be taken to protect public health and welfare and the environment. Such action may include, but will not necessarily be limited to, the remedial activities described more fully in the attachments to this Consent Order.

TRW Inc. (TRW) has developed, proposed and agrees to undertake only those actions required of it by the terms and conditions of this Consent Order.

#### IV. PARTIES BOUND

This Consent Order shall apply to and be binding upon TRW and OEPA their agents, successors, and assigns and upon all persons, contractors, and consultants acting on behalf of OEPA or TRW. TRW agrees to provide copies of this Order to all contractors performing any work called for by this Order.

#### V. WORK TO BE PERFORMED

OEPA and TRW agree on the scope of work and the specific remedial activities addressed by this Order, and, based on facts presently known, believe that it is consistent with the National Contingency Plan (NCP).

All response work performed pursuant to this Consent Order shall be under the direction and supervision of a qualified professional engineer or a certified geologist with expertise in hazardous waste site cleanup. Prior to the initiation of site work, TRW shall notify OEPA in writing regarding the identity of such engineer or geologist and of any contractors and/or subcontractors to be used in carrying out the terms of this Consent Order.

Moreover, all actions required to be taken pursuant to this Consent Order shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations unless an exemption from such requirements is specifically provided herein. OEPA shall cooperate to expedite all required permit processing.

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Based on the foregoing, it is hereby AGREED TO AND ORDERED that the following work shall be performed:

A. TRW shall implement the tasks detailed in the Groundwater Workplan which has been prepared by TRW and approved by OEPA, and is attached to and incorporated in this Consent Order (Attachment A). This work shall be conducted in accordance with the standards, specifications, and schedule contained in the Groundwater Workplan.

1. TRW shall design, construct, maintain and operate the groundwater extraction and treatment system consisting of groundwater extraction wells and air stripping of volatile organic chemicals. This system shall be constructed in accordance with conceptual design criteria presented in Attachment A.

Further, TRW shall design, construct, and maintain groundwater monitoring compliance wells in accordance with plans, which shall be approved by OEPA and installed at locations, to be approved by OEPA. Upon approval by OEPA, said plans and well locations shall be incorporated into this Order as Attachment C.

2. TRW shall maintain a hydraulic gradient with groundwater and contaminant flow towards the groundwater extraction wells at all times until the groundwater cleanup is determined to be completed, as described below.

3. TRW shall utilize the analytical protocols specified in 40 CFR 136 as amended October 26, 1984 method 601 for the determination of 29 purgable halocarbons in water.

4. TRW shall obtain from Ohio EPA an Ohio National Pollutant Elimination System permit to discharge treated wastewater pursuant to the provisions of Chapter 6111 of the Ohio Revised Code and air permits to install and operate in accordance with Chapter 3704 of the Ohio Revised Code. Ohio EPA will use its best efforts to timely review and issue said permits, as final actions of the Director pursuant to Section 3745.04 of the Ohio Revised Code.

5. TRW shall predict the effective reduction in volatile organic chemical concentration for each compliance monitoring location for each of the following time intervals, beginning 30 days from the date of Ohio EPA approval of the model calibration:

- 1 year after construction
- 5 years after construction
- 10 years after construction

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6. At the time intervals listed at A-5 above, TRW shall determine the effectiveness of the groundwater treatment system by comparing predicted clean-up concentrations with actual analytical results from groundwater monitoring compliance wells and submit reports describing TRW's findings to Ohio EPA.

7. TRW shall collect groundwater samples from the groundwater monitoring compliance wells and submit reports to OEPA beginning 30 days from the date of the final report. Samples shall be collected and reported monthly for the first six months and quarterly thereafter.

8. TRW and Ohio EPA shall review the effectiveness of the groundwater treatment system and shall determine if the objectives of the Groundwater Work-plan, Attachment A, are being met at the compliance monitoring points which are to be developed jointly by TRW and OEPA, with final approval by OEPA. The groundwater extraction and treatment system shall be operated until four quarters of monitoring data demonstrate compliance with one (or a combination) of the following performance standards:

- a. Groundwater quality meets or exceeds established drinking water standards for the parameters of concern; or
- b. Groundwater quality reaches background or  $1 \times 10^{-6}$  cancer risk concentrations for the parameters of concern; or
- c. Groundwater quality meets or exceeds alternate concentration limits as established under the procedure set forth in 40 CFR

Section 264.94 and OAC 3745-54-94 and as further described in

Attachment B.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

Failure to achieve compliance with the applicable criteria at the compliance monitoring points will result in additional corrective actions by TRW to be specified by Ohio EPA. These additional corrective actions may be, but not limited to, additional actions proposed by TRW and shall be incorporated into this Order as an amendment thereto. Any difference, dispute, or disagreement between OEPA and TRW regarding additional corrective actions shall be resolved pursuant to the procedures set forth in paragraph X., below.

B. Within 15 days of the effective date of this Consent Order, TRW shall commence the work called for in this Order.

C. TRW shall provide monthly written progress reports to OEPA beginning on the 15th of the month following the effective date of this Order and each month thereafter until completion of the construction phase and implementation of groundwater extraction wells, as required by this Order and for a period of six months thereafter. At a minimum these progress reports shall: (1) describe the actions which have been taken toward achieving compliance with the Consent Order during the previous month, (2) include all results of sampling and tests and all other data received by TRW, and (3) include all plans and procedures completed subsequent to OEPA approval of the Groundwater Work Plan, during the past month as well as such actions, data, and plans which are scheduled for the next month.

D. Within thirty (30) days of the completion of the construction phase and implementation of the groundwater extraction wells, TRW shall submit a final report on the project. OEPA shall use best efforts to review the draft final report and the final report within thirty (30) days (and in no event shall review take more than ninety (90) days) of receipt and shall notify TRW in writing of OEPA's approval or disapproval of the reports or any part thereof. In the event of any disapproval, OEPA shall specify in writing both the deficiencies

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and the reasons for such disapproval. Approval or disapproval by OEPA shall not be inconsistent with the NCP, CERCLA, Sections 3734.13(A) and 6111.03(H) of the Ohio Revised Code or the regulations promulgated thereunder.

E. In the event of disapproval of any report, TRW shall amend and submit to OEPA such revised reports within 30 calendar days of receipt of OEPA notification of report disapproval.

Documents, including reports, approvals, and other correspondence, to be submitted pursuant to this Consent Order, shall be sent by certified mail to the respective Project Coordinators at the following addresses or to such other addresses as TRW or OEPA hereafter may designate in writing:

- 1) Documents to be submitted to TRW should be sent to:

Andrew Resetar, Project Coordinator  
TRW Inc., T-1313  
23555 Euclid Avenue  
Cleveland, Ohio 44771

- 2) Documents to be submitted to the OEPA should be sent to:

Gary Gifford  
Project Coordinator  
Ohio EPA  
Northeast District Office  
2110 East Aurora Road  
Twinsburg, Ohio 44087

and

Gerald Myers  
Ohio EPA  
Division of Solid and Hazardous  
Waste Management  
P.O. Box 1049  
Columbus, Ohio 43216-1049

#### VI. PROJECT COORDINATORS' DUTIES

The identity of each Project Coordinator is listed in paragraph V. above. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Order. To the maximum extent possible, communications between the parties and all documents, including reports, approvals, and other correspondence, concerning the activities performed pursuant to the terms and conditions of this Consent Order, shall be directed through the Project Coordinators.

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By: Carol Ann Date 5/9/86 8

OEPA and TRW each have the right to change their respective Project Coordinator. Such a change shall be accomplished by notifying the other parties in writing at least five calendar days prior to the change.

The OEPA Project Coordinator shall have the authority vested in the On-Scene-Coordinator by the National Contingency Plan; 40 C.F.R. Part 300 et seq., 47 Federal Register 31180 July 16, 1982. The Project Coordinators shall each have the authority to direct that work stop for a period not to exceed seventy-two (72) hours whenever a Project Coordinator determines that activities at the site may create a present danger to public health or the environment.

#### VII. SITE ACCESS

To the extent that the Site is presently owned by parties other than those bound by this Consent Order, TRW has obtained or will use its best efforts to obtain site access agreements from the present owners within 30 calendar days of the effective date of this Consent Order. Such agreements shall provide complete access to OEPA and/or its authorized representatives. In the event that site access agreements are not obtained within the time referenced above, TRW shall notify OEPA regarding the lack of such agreements as soon as possible after the passage of the thirty (30) days, and in no event more than fifteen (15) days after the end of the thirty (30) day time period.

#### VIII. SAMPLING, ACCESS, AND DATA/DOCUMENT AVAILABILITY

TRW shall make the results of all sampling and/or tests or other data generated by TRW, or on TRW's behalf, with respect to the implementation of this Consent Order, available to OEPA and shall submit these results in monthly progress reports as described in Section V of this Consent Order. OEPA will make available to TRW the results of sampling and/or tests or other data similarly generated by OEPA.

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By: David D. [Signature] Date: 5/9/86 9

At the request of OEPA, TRW shall allow split or duplicate samples to be taken by OEPA and/or its authorized representatives, of any samples collected by TRW pursuant to the implementation of this Consent Order. TRW shall notify OEPA not less than 48 hours in advance of any sample collections activity.

OEPA or its authorized representative shall have the authority to enter and freely move about all property at the Site at all reasonable times for the purposes of, inter alia: inspecting and copying records, operating logs, and contracts related to the Site; reviewing the progress of TRW in carrying out the terms of this Consent Order; conducting such tests as the Project Coordinators deem necessary; and verifying the data submitted to OEPA by TRW. OEPA shall use its best efforts pursuant to its statutory authority in Chapters 3734 and 6111 of the Ohio Revised Code to assist TRW in obtaining access in the event that TRW is denied voluntary access.

All parties with access to the Site pursuant to this paragraph shall comply with all approved health and safety plans. Nothing herein shall act to limit the statutory authority of OEPA to conduct inspections and gather information.

#### IX. RECORD PRESERVATION

OEPA and TRW agree that each shall preserve, during the pendency of this Consent Order and for a minimum of six (6) years after its termination, all records and documents in their possession or in the possession of their divisions, employees, agents, accountants, contractors, or attorneys which relate in any way to the Site, despite any document retention policy to the contrary. After this six year period, TRW shall notify OEPA within 30 calendar days prior to the destruction of any such documents. Upon request by any party, the other party shall make available to the requesting party such records or copies of any such records at reasonable cost.

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By: William G. Smith Date 5/9/86 10

#### X. DISPUTE RESOLUTION

The Project Coordinators shall, wherever possible, operate by consensus, and in the event that there is a disapproval of any report or disagreement about the conduct of the work performed under this Order, the Project Coordinators shall negotiate in good faith for 5 business days to resolve the differences.

In the event that the Project Coordinators are unable to reach consensus on the disapproval or disagreement in 5 business days, then each Project Coordinator shall reduce his position to written form within 5 business days of the end of the good faith negotiations referenced above. Those written positions shall be immediately exchanged by the Project Coordinators.

Following the exchange of written positions, the parties shall have an additional 5 business days to resolve their differences. If OEPA concurs with the position of the Respondents, OEPA will modify the Consent Order to include necessary extensions of time or variances of required work. If OEPA does not concur with the position of the Respondents, OEPA will resolve the dispute, based upon, and consistent with, the Consent Order and Workplan and upon issuance of a final "action" of the OEPA Director pursuant to Section 3734.04 of the Revised Code.

#### XI. RESERVATION OF RIGHTS

Nothing herein shall waive OEPA's right to seek to enforce this Consent Order under Section 106(b) of CERCLA and Chapter 3734, 3745 and 6111 of the Ohio Revised Code.

Nothing herein shall waive OEPA's right to take any action authorized by Ohio Revised Code Sections 3734.20 through 3734.26 or Section 107 of CERCLA or any other law.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Linda Owen Date: 5/9/86

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Nothing herein shall waive TRW's right to seek to enforce any remedies or assert any defenses against OEPA or others in connection with the Site and (or) this Consent Order.

#### XII. REIMBURSEMENT OF COSTS

A. Thirty days after the end of the construction phase and implementation of the groundwater extraction wells, OEPA shall submit to TRW an accounting of all response and oversight costs, which are not inconsistent with the NCP, incurred by Ohio EPA with respect to this Consent Order. TRW shall, within 30 calendar days of receipt of that accounting, remit a check to OEPA for the amount of those costs. OEPA presently estimates that its costs associated with this project will be approximately \$5,000. In no event, however, shall the cumulative total of oversight costs exceed \$10,000 per year for OEPA.

B. Notwithstanding paragraph XII. A., above, OEPA reserves the right to seek all response and oversight costs which may be incurred by OEPA in the event that additional corrective actions are specified pursuant to paragraph V. A. 8., above.

C. For OEPA the checks shall be made payable to Treasurer, State of Ohio; Hazardous Waste Cleanup Special Account, and shall be addressed to:

Ohio Environmental Protection Agency  
Division of Solid and Hazardous Waste Management  
Attn: Fiscal Officer  
P.O. Box 1049  
Columbus, Ohio 43216-1049

A copy of the transmittal letter should be sent to the Project Coordinator.

#### XIII. OTHER CLAIMS

Nothing herein is intended to release any claims, causes of action or demands in law or equity against any person, firm, partnership, or corporation not a signatory to this Consent Order for any liability it may have arising out of or relating in any to the generation, storage, treatment,

handling, transportation, release, or disposal of any hazardous substances, hazardous waste, pollutants, or contaminants found at, taken to, or taken from the Site.

The OEPA recognizes and agrees that TRW shall have a right to contribution, indemnity and(or) any other available remedies against any person found to be a responsible person or otherwise liable for contribution, indemnity and(or) other available remedies for any amounts which have been or will be expended by TRW or paid to OEPA under this Consent Order or otherwise in connection with any claims asserted by the OEPA and(or) others against TRW in connection with the Site.

#### XIV. INDEMNIFICATION

TRW agrees to indemnify and save and hold OEPA, its agents and employees, harmless from any and all claims or causes of action arising from or on account of acts or omissions of TRW, its agents or assigns, in carrying out the activities pursuant to this Consent Order. OEPA shall not be party to any contract involving TRW for work accomplished pursuant to this Order. Consistent with federal, state, and common laws, nothing in this Order shall render TRW liable for any act or omission of OEPA.

#### XV. PUBLIC COMMENT, EFFECTIVE DATE AND MODIFICATION

OEPA shall make the draft final version of this Consent Order available to the public for review and comment pursuant to OEPA policy, prior to signature of the Director and in accordance with the procedures of Chapter 3734-47 of the Ohio Administrative Code; specifically, Rules 3745-47-05, 3745-47-08, and 3745-47-12.

The effective date of this Consent Order shall be the date on which it is signed by the last party.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: William D. Davis

Date 5/9/86

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This Consent Order may be amended by mutual agreement of OEPA and TRW. Such amendments shall be in writing and shall have as the effective date, that date on which such amendments are signed by the last party.

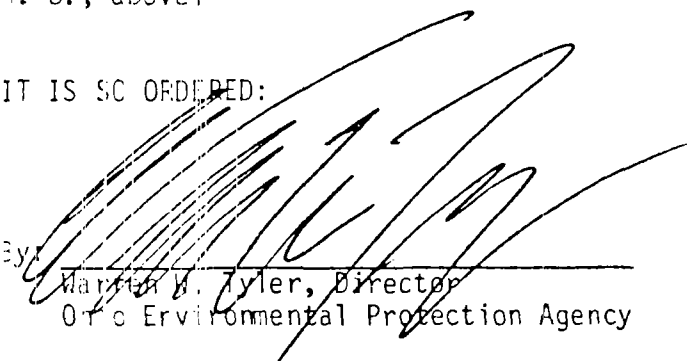
#### XVI. RELEASE AND COVENANT NOT TO SUE

Upon termination of this Consent Order pursuant to Section XVII of this Consent Order, and reimbursement to OEPA as provided in Section XII, OEPA covenants not to sue TRW for costs incurred by OEPA associated with the conduct and completion of the activities called for in this Consent Order except as otherwise reserved herein, and TRW shall be released from obligations embodied in this Consent Order with the exception of maintenance, monitoring and reporting requirements and subject to Section XI above.

#### XVII. TERMINATION AND SATISFACTION

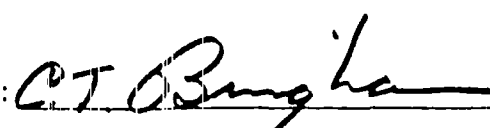
The provisions of this Consent Order shall be deemed satisfied upon TRW's receipt of written approval from OEPA of the final report pursuant to paragraph v. D. above, except with respect to the provisions of paragraphs V. A. 5. to V. A. 8., above.

IT IS SO ORDERED:

By:   
\_\_\_\_\_  
Martin W. Tyler, Director  
Ohio Environmental Protection Agency

4/28/86  
\_\_\_\_\_  
Date

TRW Inc. has consented to the issuance of this Order, and hereby waives any right it may have to appeal the issuance of this Order.

By:   
\_\_\_\_\_  
MANAGER ENVIRONMENTAL PROS  
Title

4/15/86  
\_\_\_\_\_  
Date

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ATTACHMENT A  
RI/FS EQUIVALENT

Pursuant to guidance from Ohio EPA and USEPA, TRW has created a "Remedial Investigation/Feasibility Study Equivalent" (RI/FS Equivalent) plan. The plan is the result of extensive sampling, lab analysis and field work, as well as desk research and analysis and engineering bench work. The results of these efforts were reported to the government agencies in a series of reports during 1984 and 1985. These reports, listed below, are, collectively, the RI/FS Equivalent.

The RI/FS Equivalent is the basis upon which the remedial action was chosen and contains within it the description of groundwater remedial activities contemplated at the Minerva site.

The reports that comprise the RI/FS Equivalent are:

- REPORT #1: CLEMENT ASSOCIATES, INC., 1984. "Amended Proposed Groundwater Treatment Feasibility Study for the TRW Site in Minerva, Ohio". Prepared for TRW, Inc., December 7, 1984.
- REPORT #2: CLEMENT ASSOCIATES, INC., 1985. "Groundwater Remedial Investigation and Feasibility Study Report for the TRW Site in Minerva, Ohio". Prepared for TRW, Inc., April 17, 1985.
- REPORT #3: O'BRIEN & GERE ENGINEERS, INC., 1985a. "Groundwater Treatment Conceptual Design Report, TRW, Minerva, Ohio." Prepared for TRW, Inc., July 8, 1985.
- REPORT #4: O'BRIEN & GERE ENGINEERS, INC., 1985b. "Addendum - Groundwater Treatment Conceptual Design Report, TRW, Minerva, Ohio." Prepared for TRW, Inc., July 24, 1985.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: William D. Davis Date: 5/9/86

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A summary of intended groundwater remedial actions, not intended to include the greater detail inherent in the actual RI/FS Equivalent, is as follows:

- Drilling of four groundwater withdrawal recovery wells (three south of the plant and one in the TRW barn area), and the installation of pumps and piping to convey recovered groundwater to the proposed treatment system.
- Installation of a packed tower air stripper to treat groundwater by removing volatile organic compounds.
- Discharge of treated groundwater to Sandy Creek via the West Lake drainage stream.

Details of the proposed remedial actions are described in Reports #3 and #4.

certify this to be a true and accurate copy of the original document as filed in the records of the Ohio Environmental Protection Agency.

By: Vincent Davis Date: 5/9/86

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State Of Ohio Environmental Protection Agency

P.O. Box 1049, 361 East Broad St., Columbus, Ohio 43266-0149  
(614) 466-8555



Richard F. Celeste, Governor

Attachment B

As applied to this site, potential adverse effects on groundwater quality will be addressed as per the above provisions by considering the following receptors and their associated exposure points: 1) current users of groundwater from private wells; 2) users of Minerva city well water. Potential effect on hydraulically connected surface water quality will be addressed considering downstream users at Sandy Creek.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By: Vivian Davis Date: 5/9/86

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3745-54-94

CONCENTRATION LIMITS

A)

THE FACILITY PERMIT WILL SPECIFY THE CONCENTRATION LIMITS IN THE GROUND WATER FOR HAZARDOUS CONSTITUENTS ESTABLISHED UNDER RULE 3745-54-93 OF THE ADMINISTRATIVE CODE. THE CONCENTRATION OF A HAZARDOUS CONSTITUENT:

- (1) MUST NOT EXCEED THE BACKGROUND LEVEL OF THAT CONSTITUENT IN THE GROUND WATER AT THE TIME THAT LIMIT IS SPECIFIED IN THE PERMIT; OR
- (2) FOR ANY OF THE CONSTITUENTS LISTED IN "TABLE I" MUST NOT EXCEED THE RESPECTIVE VALUE GIVEN IN THAT TABLE IF THE BACKGROUND LEVEL OF THE CONSTITUENT IS BELOW THE VALUE GIVEN IN "TABLE I"; OR
- (3) MUST NOT EXCEED AN ALTERNATE LIMIT ESTABLISHED IN THE PERMIT UNDER PARAGRAPH (B) OF THIS RULE.

(B)

AN ALTERNATE CONCENTRATION LIMIT WILL BE ESTABLISHED FOR A HAZARDOUS CONSTITUENT IF IT IS FOUND THAT THE CONSTITUENT WILL NOT POSE A SUBSTANTIAL PRESENT OR POTENTIAL HAZARD TO HUMAN HEALTH OR THE ENVIRONMENT AS LONG AS THE ALTERNATE CONCENTRATION LIMIT IS NOT EXCEEDED. IN ESTABLISHING ALTERNATE CONCENTRATION LIMITS, THE DIRECTOR WILL CONSIDER THE FOLLOWING FACTORS:

- (1) POTENTIAL ADVERSE EFFECTS ON GROUND WATER QUALITY, CONSIDERING:
  - (a) THE PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE WASTE IN THE REGULATED UNIT, INCLUDING ITS POTENTIAL FOR MIGRATION;
  - (b) THE HYDROGEOLOGICAL CHARACTERISTICS OF THE FACILITY AND SURROUNDING LAND;
  - (c) THE QUANTITY OF GROUND WATER AND THE DIRECTION OF GROUND WATER FLOW;
  - (d) THE PROXIMITY AND WITHDRAWAL RATES OF GROUND WATER USERS;
  - (e) THE CURRENT AND FUTURE USE OF GROUND WATER IN THE AREA;
  - (f) THE EXISTING QUALITY OF GROUND WATER, INCLUDING OTHER SOURCES OF CONTAMINATION AND THEIR CUMULATIVE IMPACT ON THE GROUND WATER QUALITY;
  - (g) THE POTENTIAL FOR HEALTH RISKS CAUSED BY HUMAN EXPOSURE TO WASTE CONSTITUENTS;

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By:

*David Davis* Date *5/9/86*

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Attachment B

- (h) THE POTENTIAL DAMAGE TO WILDLIFE, CROPS, VEGETATION, AND PHYSICAL STRUCTURES CAUSED BY EXPOSURE TO WASTE CONSTITUENTS;
- (i) THE PERSISTENCE AND PERMANENCE OF THE POTENTIAL ADVERSE EFFECTS; AND
- (2) POTENTIAL ADVERSE EFFECTS ON HYDRAULICALLY-CONNECTED SURFACE-WATER QUALITY, CONSIDERING:
  - (a) THE VOLUME AND PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE WASTE IN THE REGULATED UNIT;
  - (b) THE HYDROGEOLOGICAL CHARACTERISTICS OF THE FACILITY AND SURROUNDING LAND;
  - (c) THE QUANTITY AND QUALITY OF GROUND WATER, AND THE DIRECTION OF GROUND WATER FLOW;
  - (d) THE PATTERNS OF RAINFALL IN THE REGION;
  - (e) THE PROXIMITY OF THE REGULATED UNIT TO SURFACE WATERS;
  - (f) THE CURRENT AND FUTURE USES OF SURFACE WATERS IN THE AREA AND ANY WATER QUALITY STANDARDS ESTABLISHED FOR THOSE SURFACE WATERS;
  - (g) THE EXISTING QUALITY OF SURFACE WATER, INCLUDING OTHER SOURCES OF CONTAMINATION AND THE CUMULATIVE IMPACT ON SURFACE WATER QUALITY;
  - (h) THE POTENTIAL FOR HEALTH RISKS CAUSED BY HUMAN EXPOSURE TO WASTE CONSTITUENTS;
  - (i) THE POTENTIAL DAMAGE TO WILDLIFE, CROPS, VEGETATION, AND PHYSICAL STRUCTURES CAUSED BY EXPOSURE TO WASTE CONSTITUENTS;
  - (j) THE PERSISTENCE AND PERMANENCE OF THE POTENTIAL ADVERSE EFFECTS.

I certify this to be a true and accurate copy of the official document as filed in the records of the Ohio Environmental Protection Agency.

By:

William Davis Date 5/9/86

Ohio Environmental Protection Agency  
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The hydrogeological characteristics of the facility and surrounding

The quantity of ground water and the direction of ground-water

The proximity and withdrawal of ground-water users;

The current and future uses of ground water in the area;

The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground-water quality;

(v) The potential for health risks caused by human exposure to waste constituents;

(vi) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(vii) The persistence and permanence of the potential adverse effects; and

(viii) Potential adverse effects on hydraulically-connected surface water quality, considering:

(1) The volume and physical and chemical characteristics of the waste in the regulated unit;

(ii) The hydrogeological characteristics of the facility and surrounding

(iii) The quantity and quality of ground water, and the direction of ground-water flow;

(iv) The patterns of rainfall in the region;

(v) The proximity of the regulated unit to surface waters;

(vi) The current and future uses of surface waters in the area and any other quality standards established for those surface waters;

(vii) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface-water quality;

(viii) The potential for health risks caused by human exposure to waste constituents;

(ix) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(x) The persistence and permanence of the potential adverse effects.

(c) In making any determination under paragraph (b) of this section about the use of ground water in the area around the facility the Regional Administrator will consider any identification of underground sources of drinking water and exempted aquifers made under § 144.8 of this chapter.

area around the facility, the Regional Administrator will consider any identification of underground sources of drinking water and exempted aquifers made under § 144.8 of this chapter.

(47 FR 32350, July 26, 1982, as amended at 48 FR 14294, Apr. 1, 1983)

#### § 264.94 Concentration limits.

(a) The Regional Administrator will specify in the facility permit concentration limits in the ground water for hazardous constituents established under § 264.93. The concentration of a hazardous constituent:

(1) Must not exceed the background level of that constituent in the ground water at the time that limit is specified in the permit; or

(2) For any of the constituents listed in Table 1, must not exceed the respective value given in that Table if the background level of the constituent is below the value given in Table 1; or

(3) Must not exceed an alternate limit established by the Regional Administrator under paragraph (b) of this section.

(b) The Regional Administrator will establish an alternate concentration limit for a hazardous constituent if he finds that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the Regional Administrator will consider the following factors:

(1) Potential adverse effects on ground-water quality, considering:

TABLE 1—MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUND-WATER PROTECTION

Ohio Environmental Protection Agency ENTERED DIRECTOR'S JOURNAL MAY 9 1986	
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin (1,2,3,4,10,10-hexachloro-1,7-epoxy-1,4,4a,5,6,7,8,9a-octahydro-1,4-endo, endo-5,8-dimethano naphthalene)	0.0002

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§ 264.95

TABLE 1—MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUND-WATER PROTECTION—Continued

Constituent	Maximum concentration <sup>1</sup>
Endrin (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)	0.004
Methoxychlor (1,1,1-trichloro-2,2-bis (p-methoxyphenyl)ethane)	0.1
Toxaphene (C <sub>12</sub> H <sub>10</sub> Cl <sub>6</sub> Technical chlorinated compound, 67-69 percent chlorine)	0.006
2,4-D (2,4-Dichlorophenoxyacetic acid)	0.1
2,4,5-TP Silvers (2,4,5-Trichlorophenoxypropionic acid)	0.01

<sup>1</sup> Milligrams per liter.

(i) The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

(ii) The hydrogeological characteristics of the facility and surrounding

(iii) The quantity of ground water and the direction of ground-water flow;

(iv) The proximity and withdrawal rates of ground-water users;

(v) The current and future uses of ground water in the area;

(vi) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground-water quality;

(vii) The potential for health risks caused by human exposure to waste constituents;

(viii) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(ix) The persistence and permanence of the potential adverse effects; and

(2) Potential adverse effects on hydraulically-connected surface-water quality, considering:

(i) The volume and physical and chemical characteristics of the waste in the regulated unit;

(ii) The hydrogeological characteristics of the facility and surrounding land;

(iii) The quantity and quality of ground water, and the direction of ground-water flow;

(iv) The patterns of rainfall in the region;

(v) The proximity of the regulated unit to surface waters;

(vi) The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

(vii) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

(viii) The potential for health risks caused by human exposure to waste constituents;

(ix) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

(x) The persistence and permanence of the potential adverse effects.

(c) In making any determination under paragraph (b) of this section about the use of ground water in the area around the facility the Regional Administrator will consider any identification of underground sources of drinking water and exempted aquifers made under § 144.8 of this chapter.

(47 FR 32350, July 26, 1982, as amended at 48 FR 14294, Apr. 1, 1983)

#### § 264.95 Point of compliance.

(a) The Regional Administrator will specify in the facility permit the point of compliance at which the ground-water protection standard of § 264.92 applies and at which monitoring must be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated units.

(b) The waste management area is the limit projected in the horizontal plane of the area on which waste will be placed during the active life of a regulated unit.

(1) The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit.

(2) If the facility contains more than one regulated unit, the waste management area is described by an imaginary line circumscribing the several regulated units.

TABLE I

Attachment B

MAXIMUM CONCENTRATION OF CONSTITUENTS FOR  
GROUND WATER PROTECTION

CONSTITUENT	MAXIMUM CONCENTRATION (MILLIGRAMS PER LITER)
ARSENIC	0.05
BARIUM	1.0
CADMIUM	0.01
CHROMIUM	0.05
LEAD	0.05
MERCURY	0.002
SELENIUM	0.01
SILVER	0.05
ENDRIN (1,2,3,4,10,10-HEXACHLORO-1,7-EPOXY- 1,4,4a,5,6,7,8,9a,-OCTAHYDRO-1, 4-ENDO, ENDO- 5,8-DIMETHANO NAPHTHALENE)	0.0002
LIDEXNE (1,2,3,4,5,6-HEXACHLOROCYCLOHEXANE, GAMMA ISOMER)	0.004
METHYLCHLOR (1,1,1-TRICHLORO-2,2-BIS (P-METHOX- YBENZYL)ETHANE)	0.1
TOXAPHENE (C <sub>12</sub> H <sub>10</sub> CL <sub>6</sub> TECHNICAL CHLORINATED CAMPHENE, 67-69-PERCENT CHLORINE	0.005
2,4-D) (2,4-DICHLOROPHENOXACETIC ACID)	0.1
2,4,5-TP SILVEX (2,4,5-TRICHLOROPHENOXYPROPIONIC ACID)	0.01

Effective: 3 0 JUL 1964CERTIFICATION *[Signature]*3 0 JUL 1964

Date

Promulgated under: RC Chapter 119  
Rule amplifies: RC Section 3734.12I certify this to be a true and accurate copy of the  
official document as filed in the records of the Ohio  
Environmental Protection Agency.By *[Signature]* Date 5/9/86Ohio Environmental Protection Agency  
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# Attachment C

Attachment C (according to H.W.  
as:

Supplemental Groundwater  
Transmissivity Study for the  
TRW Site  
Munroe, Ohio

Vol I, II & III

Volume I & II dated Nov 21, 1986

Volume III dated January 20, 1987  
(supersedes Nov 21, 1986)